

32. The composition according to claim 31, wherein the spherical particles have a diameter comprised between 5 and 70  $\mu\text{m}$ .
33. The composition according to claim 30 in spray-dried form.
34. The composition according to claim 31 in spray-dried form.
35. The composition according to claim 32 in spray-dried form.
36. The composition according to claim 30 wherein the inulin composition is esterified, etherified, oxidized and/or cross-linked.
37. A composition having a creamy structure comprising the inulin composition according to claim 30.
38. A composition having a creamy structure comprising the inulin composition according to claim 32.
39. A pelletized composition including the composition according to claim 33 which forms instantly a colloidal dispersion.
40. A pelletized composition including the composition according to claim 34 which forms instantly a colloidal dispersion.
41. A pharmaceutical, cosmetic, feed and/or food composition comprising the composition according to claim 30.
42. A pharmaceutical, cosmetic, feed and/or food composition comprising the composition according to claim 31.
43. A pharmaceutical, cosmetic, feed and/or food composition comprising the composition according to claim 33.

44. A pharmaceutical, cosmetic, feed and/or food composition comprising the composition according to claim 34.

45. A process for producing a crystallized fractionated polydisperse chicory inulin composition from a native polydisperse chicory inulin by a directed crystallization of an inulin solution, which comprises the steps in sequence of:

(A) a rapid achievement of a high degree of super saturation obtained by bringing a native polydisperse chicory inulin into solution in water solvent at a temperature above 85°C and by a rapid cooling by a heat exchanger to a temperature between - 6°C and 40°C at a rate between 0.2°C/sec and 10°C/sec, or by a rapid concentration increase through evaporation of the solvent, or by a combination thereof, to provide said crystallized fractionated polydisperse inulin in the form of particles;

(B) separation of the particles after crystallization from the obtained suspension; and

(C) washing the separated particles with water, yielding a crystallized fractionated chicory inulin composition that:

(i) is in the form of spherical particles that have a diameter comprised between 1 and 100 µm, and that present radial symmetry, double breaking and perpendicular fade cross under polarised light;

(ii) has an average degree of polymerisation (av. DP) which is double or higher than an av. DP of the native polydisperse inulin composition;

(iii) contains less than 0.2 wt% of monomers and less than 0.2 wt% of dimers and less than 1.5 wt% of oligomers with a DP < 10;

(iv) contains less than 0.2 wt% ash; and

(v) contains no detectable amount of alcohol.

46. The process according to claim 45, wherein the particles separated after crystallization are washed with demineralized water at 15°C.

47. The process according to claim 45, wherein grafting particles are used in the directed crystallization.

48. The process according to claim 45, wherein the process further comprises the step of drying of the washed particles.

49. The process according to claim 45, wherein the process further comprises the step of drying of the washed particles by spray-drying.

50. The process according to claim 47, wherein the process further comprises the step of drying of the washed particles.

51. The process according to claim 47, wherein the process further comprises the step of drying of the washed particles by spray-drying.

52. The process according to claim 45, wherein the process further comprises the step of chemical or enzymatic modification of the washed particles.

53. The process according to claim 45, wherein step (A) comprises:

a directed crystallization comprising a rapid achievement of a high degree of super saturation obtained by bringing native chicory inulin into solution in water at a concentration between 15 and 60% dry mass at a temperature above 85°C, and rapid cooling at a cooling rate between 1°C/sec and 7°C/sec to a temperature between 15°C and 25°C, including the use of grafting particles in a ratio to the particles to be produced of 1/100 to 1/200,000 (expressed as

wt%), providing crystallized fractionated polydisperse chicory inulin in the form of particles;  
and

step (C) comprises washing of the separated particles with demineralized water at 15°C,  
whereby the resulting crystallized fractionated chicory inulin composition

- (i) is in the form of spherical particles that have a diameter comprised between 1 and 100  $\mu\text{m}$ , and that present radial symmetry, double breaking and perpendicular fade cross under polarised light;
- (ii) has an average degree of polymerisation (av. DP) between 20 and 40;
- (iii) contains less than 0.2 wt% of monomers and less than 0.2 wt% of dimers and less than 1.5 wt% of oligomers with a  $\text{DP} < 10$ ;
- (iv) contains less than 0.2 wt% ash; and
- (v) contains no detectable amount of alcohol.

54. The process according to claim 53, wherein said grafting particles are used in a ratio to the particles to be produced of 1/5,000 to 1/80,000 (expressed as wt%), yielding said crystallized fractionated polydisperse chicory inulin in the form of spherical particles that have a diameter comprised between 5 to 70µm.

55. The process according to claim 53, furthermore comprising drying of the washed particles.

56. The process according to claim 53, furthermore comprising drying of the washed particles by spray-drying.

57. The process according to claim 54, furthermore comprising drying of the washed particles.